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# SOVIET ECONOMIC DEVELOPMENT: 1928-1954
# PART II: MANPOWER AND PHYSICAL PRODUCTION

This report was prepared as part of the US contribution to a NATO study comparing economic trends in the Free World and in the Sino-Soviet Bloc. The other two parts of the study which relate to the Soviet Union are: Part I, National Accounts Analysis, and Part III, Soviet Foreign Trade.



July 26, 1955

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# SOVIET ECONOMIC DEVELOPMENT: 1928-1954

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### I. Population and Labor Force.

#### A. Population.

Table 1 shows the growth of the Soviet population since the census year 1926. This growth has averaged only 1.3 percent a year in spite of the addition of over 20 million persons in acquired territories. These represent over 40 percent of the increment of the Soviet population from 1926 to 1954.

Direct losses resulting from World War I and II, repressive government measures against farmers and other groups, urbanization, and general social and economic insecurity during the 1930's have been responsible for this slow growth.

The 1945 population was estimated at 7 million less than the 1940 population, while actual losses were substantially higher, since some natural population growth continued during the period. The excess of female over males in the 15-59 age group grew to very large proportions. This is illustrated by the following table which shows the proportion of males to females in these age groups in certain years.

| 1897 | 1926 | 1939 | 1947 | 1950 | 1955 |
|---|---|---|---|---|---|
| 98 | 90 | 89 | 77 | 78 | 82 |

This disproportion, due to predominantly male losses during the two world wars, undoubtedly reduced the birth rate. The extremely rapid rate of urbanization in the USSR during most of the period but especially during the 1930's has been another factor contributing to the decline in the birth rate. Finally, the speed and violence of the collectivization movement of the First Five-Year Plan caused both direct losses and probably lower birth rates. This is reflected in the drop in the 0-4 age group from 1926 to 1939, which occurred in spite of considerable improvements in health care, and in the drop in school enrollments since 1947.

In the postwar period, population growth has been more rapid, between 1.7 and 1.8 percent a year. Economic and social conditions have been more stable, death rates have fallen rapidly, and the ratio of males to females of marriageable age has been increasing gradually. In addition, the rate of urbanization has been slowing down. These trends indicate a retardation in the long-range decline of the rate of growth in future years.*

#### B. Labor Force.

In terms of the number of persons employed, the Soviet labor force increased by only 18 percent from 1928 to 1954, very much more slowly than the population. The labor force declined slightly from 1928 to 1937, grew fairly rapidly from 1937 to 1940, and has risen slowly by about one million a year since 1948. About half (7 million) of the increment in the Soviet labor force since 1939 has been due to territorial acquisitions.

From 1928 to 1940, the non agricultural labor force tripled. The number of persons employed in agriculture fell by 40 percent. However,

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* The projection of the Soviet population is explained in a separate appendix.

in terms of man years, the decline was only 25 percent because of the large number of underemployed workers in the 1928 figures. Outside agriculture, average weekly hours declined from 47 in 1928 to 40 in the 1930's. Adjusted for changes in hours of work the total labor force increased by 21 percent from 1928 to 1940, and by 40 percent during the 1928 to 1954 period.

Since 1948, the agricultural labor force has declined very slowly. However, this trend was reversed in 1953-1954 when increased emphasis on agricultural production and, in particular, the "new lands" program, caused agricultural labor requirements to rise. The industrial labor force rose by almost 50 percent, more than twice as fast as the labor force in other non agricultural occupations.

Nearly 40 percent of workers and employees in non agricultural occupations are in industry. There has been no significant change in average weekly hours since 1948. A 48 hour week has been in effect.

Estimates of the Soviet labor force are subject to a wide margin of error. This is due to the difficulty of defining employment in agriculture during a period when shifts of labor from agriculture to other economic sectors were extremely rapid. The reported agricultural labor force in 1926, for example, was over 74 million. This number, however, includes persons who cannot be considered employed on a full time basis. It is also due to the exclusion of certain categories of labor from Soviet data. Starting with a known total labor force for certain years, it was necessary to estimate a certain percentage relationship between population and total labor force based on the age-sex distribution of the population and other data. The "unallocated" labor force is the difference between the estimated total labor force and announced or estimated employment in individual sectors. It includes forced labor, artisans and other persons engaged in the village economy but not in agriculture as such, and persons in school but probably employed on a part time basis. None of these could be allocated to the individual economic sectors. It is probable, however, that most were employed outside agriculture. Estimates of the agricultural labor force are designed to be comprehensive while available data cover only selected parts of the non agricultural sector. The great majority of forced laborers are believed to work in mining, transport, and construction. Transfers from the unallocated labor force to specified occupations have occurred on several occasions. The increase in the industrial labor force in 1954, for example, may be partly due to the freeing of slave labor.

II. Agriculture.

The slow growth of Soviet agriculture contrasts sharply with the extremely rapid growth of industry. Agricultural production rose only 15 percent between 1928 and 1940 and it was not until 1952 that the prewar level was regained after the severe setback experienced during the war. In 1954 overall agricultural production of the larger territory is estimated to have been some 30 or 40 percent above that of 1928 (precollectivization). The population of the present territory was 45 percent larger, with a tripling of the urban population, which normally has a higher per capita consumption in terms of value.

Total grain production on a larger territory in 1954 was roughly 20 percent above the 1928 level, with wheat showing an increase by as much as two-thirds, rye production about equal to 1928 and a decline in other grains. Livestock numbers were also less. In the case of industrial crops alone was there a very large rise in output.

The lag of agricultural production is due partly to institutional factors and to governmental policy, and partly to limitations of soil and climate. Severe set backs were also experienced as a result of forced collectivization of the early thirties and the destruction during World War II.

In the 1928 to 1937 period, Soviet agriculture was transformed from a small peasant economy of some 25 million households, to one characterized by the largest scale farm units in the world. However, per capita food consumption other than cereals and potatoes, remained a long way below those of Western countries. By the middle of 1938, 242,000 collective farm units incorporated 99.3 percent of the total sown area. Members of the farms were allowed to retain plots averaging one half hectare and a limited number of livestock. Within the last half decade collective farms were further enlarged and the number of farms reduced by two-thirds. Soviet farms are almost 25 times larger than American farms on the average. The collective depends on a government-owned and operated machine tractor station for supplies of power machinery and skilled manpower. State farms have generally been used for special kinds of high cost farming or for "crash" programs such as the present "new lands" expansion.

Although the collectivization program freed a large amount of agricultural labor for use elsewhere, it did relatively little to increase the level of agricultural production. Because of low state procurement prices and high delivery quotas, wages (remuneration in cash and kind) in collective farms have been low. It has been profitable for the peasant to work on his own small plot as much as possible, and to sell his produce on the free market. This results in considerable inefficiency of agricultural labor. In addition, collective farms have had to finance the bulk of their investments other than power machinery out of their own meager savings.

During the early 1930's, peasant resistance to collectivization resulted in a wholesale destruction of draft and other livestock. The reduction in the number of draft animals was gradually offset by the increase in the number of tractors and combines. Livestock herds were further severely reduced during World War II and the postwar recovery has been relatively slow.

Apart from political or institutional factors, Soviet agricultural production has been limited by a scarcity of arable land and by the low productivity of much of the arable land as a result of climatic conditions and low fertility. Nearly all the untilled land is in unfertile forest areas, in the Arctic, or in areas of very inadequate rainfall far removed from sources of irrigation. Although mechanization of agriculture on land already in use displaced a large amount of labor, it did not increase productivity per acre, and its effectiveness in new areas is limited by the quality of the land itself or by the climate. Most of the increase in agricultural production has been the result of an increase of acreage rather than of yields per acre. Productivity of animal husbandry also did not increase. Very little fertilizer has been used, except on a few industrial crops, mainly cotton, sugarbeets and flax; the amount of agricultural capital, other than tractors and combines, is still small; farm practices, such as crop rotation, are often rudimentary. Improvement of yields is certainly a possibility. The expansion of acreage however requires extremely costly irrigation and drainage projects or involves great uncertainty as to yields because of limitations of soil and climate.

The seriousness of the agricultural problem has only recently been publicly recognized by the Soviet government. The post-Stalin government has initiated a series of reforms designed to bring about a rapid increase in production. Without changing the institutional structure as embodied in the collective farm, state farm and machine tractor station, the government increased incentives by raising procurement prices and reducing taxes, reducing delivery quotas, and relaxing the pressure against the private economy of kolkhoz members; increased investment in the state sector (state farm and MTS); and embarked on a huge expansion of sown acreage in the semi-arid region.

As is indicated in Table 3, the large increase in output projected for 1955 is a function of the large increase in grain acreage scheduled for this year in the new lands of Siberia, Urals, and Kazakhstan. A four fold increase in corn acreage was also planned for 1955. The virgin land program may bring rapid though temporary results with relatively moderate labor requirements, but as accumulated moisture and fertility is used up in the new lands, a decline in production is likely to take place. The vast expansion under a labor intensive crop like corn is bound to increase the work load greatly and is likely to affect unfavorably per acre output of corn as well as other crops.

III. Industrial Production.

Industry has been the focal point of the Soviet Union's economic effort and the most dynamic element in its economic development. Industrial production tripled during the ten years 1928-1937 but was lagging far behind the Western industrial nations in total as well as per capita output. During the following three years the rate of industrial growth declined--averaging 14 percent per annum--probably as an aftermath of the extensive purges and also because of concentration on armaments production. Soviet industry sustained severe war damage, but its postwar recovery was rapid; the level of industrial output by 1950, the end of the Fourth Five-Year Plan, was 35 percent higher than in 1940, and it is expected to exceed the 1940 level by 125 percent in 1955 bringing it to about one-third of United States production.

Soviet industrial production has been heavily concentrated on the output of capital goods, as shown in table 4. During the 1928-1954 period, the production of machinery and equipment increased 16 times, production of chemicals 25 times, and output of fuels and metals more than 10 times. On the other hand, production of processed foods by large-scale industry only tripled. If the decline in home and small-scale local processing is considered, the growth in output of processed foods was very much smaller yet.

Substantial effort has been made in the USSR to expand the output of fuel and energy. Production of coal, which has been the dominant source of power in the USSR, has kept pace with the overall industrial growth since 1928. Petroleum output lagged in the prewar period, but has made rapid strides in recent years through the discovery and exploitation of new fields east of the Volga. Production of electrical energy has grown at a steady, rapid pace, and has increased by almost 30 times since 1928. Most of the electric power output is based on coal.

The domestic supply of basic industrial raw materials has grown very substantially since 1928, but some shortages, particularly in the field of non-ferrous metals, still persist. Crude steel output has risen about 10 times since 1928 to reach a level of almost 41 million metric tons in 1954. Production of non-ferrous metals, which was negligible in 1928 except for copper, has grown rapidly since that time, particularly in the case of aluminum. Output of cement and other building materials has increased about ten times over the same period. As in most other industrially-developing countries, chemicals have been produced in large volume for a multiplicity of new uses.

Perhaps the greatest strides in the field of Soviet industry have been made in the production of machinery and equipment. The country's vast investment program has required large and increasing amounts of machinery. In addition, it was a policy of the Soviet government to eliminate the economy's dependence on imports which had comprised a large part of available machinery supplies in the 1920's. The growth in the output of all machinery items has been extremely rapid. In general, the machinery industries have

received sufficiently high priorities in the procurement of capital, materials, and skilled labor to insure the fulfillment of production plans. In addition, machinery production has probably benefited more from technological improvements than any other area of the economy. Although Soviet production methods are considerably more backward than US methods in many sectors, techniques in the machinery industries are, in most cases, up to date.

IV. Transportation.

From 1928 to 1954, freight turnover increased even faster than industrial production. The bulk, over 80 percent, of Soviet freight is carried by rail. Inland shipping has some importance in the hauling of bulk items. Although truck transport is growing very rapidly, it is limited almost exclusively to city and suburban distribution by the very small number of all-weather roads.

The growth of railroad freight turnover has slowed down sine 1940; it was more than four-fold from 1928 to 1940, and only two-fold from 1940 to 1954. Freight turnover in inland shipping has more than doubled since 1948, and has almost tripled in motor transport during the same period.

In the case of railroads, the increased turnover has been due much more to the improvement and more intensive use of existing facilities than to the construction of new lines. From 1928 to 1932, according to Holland Hunter, the number of freight cars in service rose 44 percent, the number of freight locomotives 26 percent, the length of road operated 7 percent, and freight traffic 82 percent. Large backlogs of unshipped freight accumulated during this period as the production of industrial raw materials grew at a tremendous rate in widely dispersed regions. Such new developments as the "Ural-Kuznetsk Kombinat" which required long distance transport of iron ore and coal placed a heavy strain on existing facilities. Investments in railroads were not sufficient to relieve the strain. They represented only about 13 percent of total investments in the First Five-Year Plan, compared to about 18 percent in the mid-1920's.

Investments in railroads increased substantially in the period 1933-1935 in response to failure to meet transport plans, but were designed in large part to improve the quality of road and rolling stock. From 1932 to 1940, the number of freight cars increased by 42 percent, the length of track about 10 percent, and the freight turnover 140 percent. There were also considerable improvements in operating efficiency.

In the postwar period, (1948-1954) the growth of trackage and of the number of locomotives was small, freight cars in service increased about 15 percent, while freight turnover about doubled.

V. Education and Training.

A. Past Trends.

When the communist government came to power in the USSR, a substantial part of the adult population (probably about 60 percent) was illiterate; over 85 percent lived in rural areas and were engaged in work requiring little formal education and training. Less than 15 percent of the population had completed primary school, and only 1-$\frac{1}{2}$ percent had a secondary education or higher.

No substantial progress appears to have been made during the early 1920's except in reducing adult illiteracy, expanding university enrollment to provide more specialists--often graduated from special high schools (workers' faculties)--and creating technical high schools (technicums) for the training of specialists.

The start of the First Five-Year Plan was the signal for an extremely rapid expansion of all schools, both general and specialized. Labor had to be trained for industrial jobs concurrently with growth of the capital plant. Four-year primary education became compulsory in 1930; and seven-year (intermediate) education, by 1949. Ten-year (complete secondary) education, although interrupted by World War II and still little developed as late as 1949-1950, is to become compulsory by 1960. Technicums graduated 100,000 to 200,000 persons a year, and higher educational institutions are currently turning out engineers, teachers, doctors, and other professionals at the rate of nearly 250,000 a year.

In order to meet current industrial needs more rapidly, the government founded factory schools (FZU) largely for the purpose of technical training. Numerous evening courses and on-the-job training courses, on which there is unfortunately little statistical information, were also given. Illiteracy was reduced to below 20 percent by 1939.

World War II caused a fall in enrollments of nearly all schools as its pressing industrial needs gave rise to a draft of children into the labor reserve (FZO), an organization which is still in existence and has graduated between 300,000 and 1 million skilled workers a year. The labor reserve differed from the factory schools in that it was centralized and generally took in students who had completed at least 4 years of school.

Between 1927 and 1939, full-time enrollments in Russian schools increased from 11.5 million to 34 million (about the same number as in recent years). Excluding elementary and 7-year schools, enrollments went from 750,000 in 1927 to 3.8 million in 1939 to 7.6 million in 1953.

Table 1 a/

Population of the USSR, By Age Group and Sex
(In millions)

| Year | 0-14 Group | 15-19 Group | 20-29 Group | 30-59 Group | 60 and Over Group | Total Population |
|---|---|---|---|---|---|---|
| A. MALES | | | | | | |
| 1926 | 27.5 | | 39.0 | | 4.5 | 71.0 |
| 1939 | 30.2 | | 46.9 | | 4.6 | 81.7 |
| 1947 | 34.5 | | 47.9 | | 5.5 | 87.9 |
| 1950 | 34.5 | 9.2 | 17.1 | 25.7 | 5.5 | 92.0 |
| 1955 | 36.5 | 11.3 | 19.1 | 28.4 | 6.2 | 101.5 |
| B. FEMALES | | | | | | |
| 1926 | 27.2 | | 43.1 | | 5.7 | 76.0 |
| 1939 | 30.1 | | 52.4 | | 6.3 | 88.8 |
| 1947 | 33.4 | | 61.8 | | 7.9 | 103.2 |
| 1950 | 34.0 | 9.3 | 19.4 | 37.6 | 7.7 | 108.0 |
| 1955 | 35.7 | 11.1 | 19.7 | 40.8 | 9.0 | 116.3 |
| C. TOTAL | | | | | | |
| 1926 | 54.6 | 16.9 | 25.8 | 39.7 | 10.0 | 147.0 |
| 1939 | 60.3 | 16.4 | 30.8 | 51.6 | 11.2 | 170.5 |
| 1947 | 67.9 | | 109.7 | | 13.4 | 191.1 |
| 1950 | 68.5 | 18.5 | 36.5 | 63.3 | 13.2 | 200.0 |
| 1955 | 72.3 | 22.5 | 38.8 | 69.1 | 15.2 | 217.8 |

a/ All data refer to Soviet Territory as of the specified year; The postwar figures include the estimated population in the areas annexed in 1939-1940 and 1945.



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Table 2.
THE SOVIET LABOR FORCE BY ECONOMIC SECTOR
(Millions as of beginning of year)

| | Agriculture | Industry | Other Specified Nonagricultural | Military | Unallocated a/ | Total |
|---|---|---|---|---|---|---|
| | | | Millions | | | |
| 1928 | 59.2 b/ | 3.9 c/ | 6.0 c/ | 0.6 | 5.5 | 75.2 c/ |
| 1937 | 47.4 | 10.4 c/ | 14.1 c/ | 1.6 | 13.4 | 86.9 c/ |
| 1940 | 44.7 d/ | 11.1 | 17.9 d/ | 3.5 | 13.2 | 90.4 d/ |
| 1948 | 53.8 | 10.7 | 20.3 | 4.0 | 9.2 | 98.0 |
| 1949 | 53.1 | 11.8 | 20.3 | 4.0 | 9.3 | 98.5 |
| 1950 | 52.6 | 12.5 | 22.1 | 4.0 | 7.8 | 99.0 |
| 1951 | 51.6 | 13.7 | 22.9 | 4.0 | 7.8 | 100.0 |
| 1952 | 50.7 | 14.4 | 23.8 | 4.0 | 8.5 | 101.4 e/ |
| 1953 | 51.7 | 14.9 | 23.2 | 4.0 | 9.0 | 102.8 e/ |
| 1954 | 52.7 | 15.7 | 24.6 | 4.0 | 7.2 | 104.2 |
| | | | Indexes 1948 = 100 | | | |
| 1928 | 138.8 | 36.4 | 29.6 | 15.0 | 59.8 | 76.7 |
| 1937 | 88.1 | 97.2 | 69.5 | 40.0 | 145.6 | 88.7 |
| 1940 | 83.1 | 103.7 | 88.2 | 87.5 | 143.5 | 92.2 |
| 1948 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| 1949 | 98.7 | 110.3 | 100.0 | 100.0 | 101.1 | 100.5 |
| 1950 | 97.8 | 116.8 | 108.9 | 100.0 | 84.8 | 101.0 |
| 1951 | 95.9 | 128.0 | 112.8 | 100.0 | 84.8 | 102.0 |
| 1952 | 94.2 | 134.6 | 117.2 | 100.0 | 92.4 | 103.5 |
| 1953 | 96.3 | 139.3 | 114.3 | 100.0 | 97.8 | 104.9 |
| 1954 | 98.0 | 146.7 | 121.2 | 100.0 | 78.3 | 106.3 |
| | | | Percentage Distribution | | | |
| 1928 | 78.7 | 5.2 | 8.0 | 0.8 | 7.3 | 100.0 |
| 1937 | 54.6 | 12.0 | 16.2 | 1.8 | 15.4 | 100.0 |
| 1940 | 49.4 | 12.3 | 19.8 | 3.9 | 14.6 | 100.0 |
| 1948 | 54.9 | 10.9 | 20.7 | 4.1 | 9.4 | 100.0 |
| 1949 | 53.9 | 12.0 | 20.6 | 4.1 | 9.2 | 100.0 |
| 1950 | 53.1 | 12.6 | 22.3 | 4.1 | 7.9 | 100.0 |
| 1951 | 51.6 | 13.7 | 22.9 | 4.0 | 7.8 | 100.0 |
| 1952 | 50.0 | 14.2 | 23.5 | 3.9 | 8.4 | 100.0 |
| 1953 | 50.3 | 14.5 | 22.6 | 3.9 | 8.8 | 100.0 |
| 1954 | 50.6 | 15.1 | 23.6 | 3.8 | 6.9 | 100.0 |

a/ Residual. Considering the roughness of the postwar estimates of total labor force, these figures may not accurately reflect the actual situation in the year 1948-1954.

b/ In man-years of labor. Estimates of employment in agriculture based on the 1926 Census give a figure of over 74 million. This figure, however, includes many persons which in estimates for subsequent years, were not regarded as full-time workers. It was reduced to 1937 man-years equivalents.

c/ Basic work week--40 hours, as against 48 hours for all other years.

d/ Excluding new territories. These added about 7 million agricultural workers and 3 million nonagricultural workers to the Soviet labor force.

e/ Interpolated.

Table 3

Soviet Agricultural Production
(Physical Units and Indexes)

| | Unit of Measurement | 1928 a/ | 1932 a/ | 1937 a/ | 1938a/ | 1940 b/ | 1948 b/ |
|---|---|---|---|---|---|---|---|
| **A. Physical Units** | | | | | | | |
| Total Sown Area | Million hectares | 112.9c/ | 134.4c/ | 135.3c/ | 136.9c/ | 150.4c/ | 134.4c/ |
| Production | Thousand MT | | | | | | |
| Wheat | " " | 22,000.c/ | 19,300 | 39,900 | 32,700 | 33,300 | 26,800 |
| Rye | " " | 19,300 c/ | 20,900 | 25,000 | 17,800 | 21,000 | 19,100 |
| Corn | " " | 3,300 c/ | 3,200 | 3,900 | 2,700 | n.a. | 3,500 |
| RICE | " " | n.a. | 200 | 320 | n.a. | n.a. | 390 |
| Potatoes | " " | 46,400 c/ | 43,100 c/ | 65,600 c/ | 42,000 | n.a. | 65,000 |
| Cotton (ginned) | " " | 244 c/ | 388 c/ | 695 c/<br>855 cd/ | 825 c/ | 730e/ | 730 |
| Wool (grease)f/ | " " | 178 c/ | 69 c/ | 106 c/ | 133 c/ | 160 | 155 |
| Natural Rubber | " " | neg. | neg. | neg. | neg. | neg. | .8 |
| Livestock Numbers (Jan. 1) | Million head | | | | | | |
| Cattle | | 66.8bcg/ | 38.3c/ | 47.5c/ | 50.9c/ | 54.5cL/ | 50.0 |
| Hogs | | 27.7bcg/ | 10.9c/ | 20.0c/ | 25.7c/ | 27.5cL/ | 12.0 |
| Sheep and Goats | | 114.6bcg/ | 47.6c/ | 53.8c/ | 66.6c/ | 91.6cL/ | 74.5 |
| Horses | | 36.1bcg/ | 21.7c/ | 15.9c/ | 16.2c/ | 21.0cL/ | 11.3 |
| **B. Indexes (1948=100)i/** | | | | | | | |
| Total Agricultural Output | | | | | | | |
| Index A--j/k/ | | 89 | | 108 | | 105a/121b/ | 100 |
| Index B--lk/ | | 95 | | 113 | | 109a/125b/ | 100 |





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Table 3

Soviet Agricultural Production
(Physical Units and Indexes)
(cont'd)

| | Unit of Measurement | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 |
|---|---|---|---|---|---|---|---|---|
| A. Physical Units | | | | | | | | |
| Total Sown Area | Million hectares | 140.4 c/ | 147.0 c/ | 152.9 c/ | 155.7 c/ | 157.2 c/ | 166.1 | 186.0 |
| Production | Thousand MT | | | | | | | |
| Wheat | " " | 28,700 | 31,200 | 31,300 | 38,800 | 34,700 | 36,400 | n.a. |
| Rye | " " | 19,300 | 23,000 | 23,300 | 22,100 | 18,700 | 20,200 | n.a. |
| Corn | " " | 3,600 | 3,300 | 2,800 | 3,000 | 3,800 | 3,800 | n.a. |
| Rice | " " | 390 | 400 | 400 | 400 | 400 | 400 | 400 |
| Potatoes | " " | 63,000 | 72,300 | 59,500 | 69,700 | 66,400 | 67,200 | 75,000 |
| Cotton (ginned) | " " | 825e/ | 1,140f/ | 1.220e/ | 1,260e/ | 1,300e/ | 1,410e/ | 1,460e/ |
| Wool (grease)f/ | " " | 175 | 190 | 205 | 225 | 230 | 235 | 240 |
| Natural Rubber | " " | 1.5 | 2.3 | 2.5 | 2.7 | 2.9 | 3.0 | 3.0 |
| Livestock Numbers (Jan.1) | Million head | | | | | | | |
| Cattle | | 54.0 | 56.0 | 57.2c/ | 58.8c/ | 56.6c/ | 57.7 | 58.8 |
| Hogs | | 15.0 | 19.0 | 24.1c/ | 26.7c/ | 28.5c/ | 29.6 | 30.0 |
| Sheep and Goats | | 85.1 | 89.7 | 99.0c/ | 107.5c/ | 109.9c/ | 112.0 | 114.3 |
| Horses | | 12.0 | 12.7 | 13.7c/ | 14.7c/ | 15.3c/ | 16.2 | 16.2 |
| B. Indexes (1948= 100) i/ | | | | | | | | |
| Total Agricultural Output | | 106 | 116 | 116 | 129 | 122 | 126 | 137m/ |
| Index A--jk/ | | n.a. | 119 | 114 | 124 | 118 | 123 | 137m/ |
| Index B--lk/ | | | | | | | | |





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n.a. - Not available.

a. - Prewar territory

b. - Postwar territory.

c. - Official data or derived from official data.

d. - Total raw cotton produced (not necessarily ginned) expressed in terms of ginned cotton on the basis of 32% ginning yield.

e. - The figures on cotton production may be too low in view of the reported output of textiles.

f. - Years prior to 1940 include camels and goats hair.

g. - Summer livestock numbers.

h. - End of year.

i. - Two alternative indexes are presented; the nature of the data permitted these two approaches:

j. - Index for sale and home consumption. For the postwar years, the index is based on 10 commodities or groups of commodities - bread grains, coarse grains, potatoes, vegetables, meat, milk, cotton, wool, flax fiber, and hemp.

k. - Prewar index for the prewar boundaries based on N. Jasny's computations in Socialized Agriculture in the USSR, Stanford University Press, pages 676 and 672 respectively. An adjustment of 15% for acquired territories was made to link the 1940 index for the postwar boundaries to that for the prewar borders.

l. - Gross agricultural index. The postwar index is based on 8 commodities or groups of commodities -- all grains, potatoes, sugarbeets, cotton, flax fiber, meat, milk, and wool.

m. - Average weather assumed.





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TABLE 4
SOVIET INDUSTRIAL PRODUCTION
(Physical Units and Indexes)

| | | Old Territory | | | | New Territory | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1928 | 1932 | 1937 | 1940 | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 |
| **A. Physical Units** | | | | | | | | | | | | | |
| **Fuel and Power** | | | | | | | | | | | | | |
| Coal | mill. MT | 32.5 a/ | 57.8 | 110.4 | 139.2 | 150.4 | 171.0 | 190.8 | 205.0 | 215.8 | 224.5 | 241.0 | 270.0 |
| Lignite | mill. MT | 3.1 a/ | 6.9 | 17.6 | 26.8 | 59.2 | 65.1 | 71.2 | 77.4 | 85.5 | 95.5 | 105.0 | 121.0 |
| Crude Oil | mill. MT | 11.5 a/ | 21.4 | 28.5 | 30.7 | 29.4 | 33.6 | 37.6 | 41.6 | 45.6 | 49.6 | 53.6 | 57.6 |
| Electric Power | bill. KWH | 5 a/ | 14 | 36 | 48 | 66 | 78 | 90 | 103 | 117 | 133 | 147 | 165 |
| **Metals** | | | | | | | | | | | | | |
| Iron Ore | mill. MT | 6.1 | 12.1 | 27.8 | 29.8 | 30.0 | 35.0 | 43.5 | 51.2 | 59.0 | 66.7 | 74.5 | 82.2 |
| Manganese Ore | mill. MT | .7 | .8 | 2.8 | 2.5 | 2.3 | 3.1 | 3.5 | 4.1 | 4.4 | 4.7 | 5.0 | 5.6 |
| Crude Steel | mill. MT | 4.3 | 5.9 | 17.8 | 18.3 | 18.7 | 23.4 | 27.3 | 31.4 | 34.5 | 38.0 | 41.0 | 44.2 |
| Finished Steel | mill. MT | 3.4 | 4.3 | 13.0 | 13.1 | 14.1 | 17.9 | 20.7 | 23.8 | 26.7 | 29.4 | 32.1 | 34.4 |
| Primary Copper | thous. MT | 19 | 31 | 92 | 137 | 200 | 225 | 240 | 250 | 287 | 310 | 360 | 365 |
| Aluminum, primary | thous. MT | 0 | 1 | 38 | 60 | 135 | 155 | 170 | 200 | 220 | 330 | 440 | 515 |
| Zinc, refined | thous. MT | 2 | 14 | 78 | 86 | 81 | 103 | 115 | 132 | 164 | 185 | 200 | 215 |
| Lead, refined | thous. MT | 3 | 18 | 55 | 75 | 76 | 90 | 100 | 120 | 140 | 168 | 210 | 270 |
| Tin, metal | thous. MT | 0 | 0 | NA | 1.7 | 6.3 | 7.3 | 8.3 | 9.3 | 10.5 | 11.5 | 13.0 | 14.0 |
| **Chemicals** | | | | | | | | | | | | | |
| Sulphuric Acid | thous. MT | 211 a/ | 552 | 1,400 | 1,520 | 1,590 | 1,810 | 2,040 | 2,280 | 2,500 | 2,750 | 3,030 | 3,330 |
| Ammonia | thous. MT | neg. | neg. | NA | 335 | 436 | 476 | 520 | 568 | 620 | 677 | 714 | 753 |
| Synthetic Rubber | thous. MT | 0 | neg. | 49 | 74 | 90 | 122 | 143 | 172 | 187 | 211 | 213 | 255 |
| Fertilizers, mineral | thous. MT | NA | 1,075 | 3,185 | 3,100 | 2,250 | 2,950 | 4,760 | 5,090 | 5,500 | 6,000 | 6,960 | 8,500 |
| **Construction Materials** | | | | | | | | | | | | | |
| Cement | mill. MT | 1.8 | 3.5 | 5.5 | 5.8 | 6.4 | 8.1 | 10.0 | 12.0 | 14.0 | 16.0 | 19.0 | 21-22 |
| Bricks | mill. MT | 1,800 | 4,900 | 8,700 | 7,200 | 6,900 | 8,000 | 9,000 | 10,800 | 12,800 | 14,400 | 16,300 | 18,300 |
| Sawn Timber | mill. m3 | 13.6 a/ | 24.4 | 33.8 | 34.2 | 21.6 | NA | 49.5 | 55.0 | 60.5 | 64.0 | 61.3 | 58.5 |
| **Machinery and Equipment** | | | | | | | | | | | | | |
| Machine Tools | thous. units | 2 a/ | 18 | 36 | 49 | 59 | 71 | 79 | 82 | 85 | 88 | 92 | 97 |
| Steam Turbines | thous. KW | 36 a/ | 239 | NA | 1,000 | 1,370 | 2,360 | 2,600 | 2,860 | 3,090 | 4,320 | 4,500 | 5,000 |
| Motors & Generators | thous. KW | 436 a/ | 3,200 | 3,400 d/ | NA | 4,950 | 6,150 | 7,150 | 10,300 | 11,600 | 15,100 | 17,000 | 19,300 |
| Mainline Locomotives | thous. units | .5 | .8 | 1.2 | .9 | 1.5 | 1.9 | 1.6 | 1.3 | .8 | 1.8 | 2.0 | 2.2 |
| Freight Cars | thous. equiv. 2-axle units | 11 a/ | 21 | 59 | 50 | 77 | 113<br>NA | 132<br>77.1 | 131<br>77.2 | 127<br>89.7 | 131<br>133.0 | 131<br>137.0 | 135<br>138.0 |
| Merchant Ships | thous. GRT | NA | NA | NA | NA | NA | 226 | 293 | 249 | 260 | 288 | 313 | 337 |
| Trucks | thous. units | 1 a/ | 24 | 182 | 126 | 174 | 36 | 50 | 59 | 66 | 71 | 74 | 75 |
| Passenger Cars | thous. units | 0 | neg. | 18 | NA | 16 | 86.2 | 104.0 | 100.0 | 110.8 | 120.3 | 146.5 | 175.0 |
| Tractors | thous. units | 1.2 | 50.6 | 51.2 | 31.1 | 56.9 | | | | | | | |
| **Food Products** | | | | | | | | | | | | | |
| Flour (equivalent of human grain consumption) | thous. MT | 32,500 | NA | 37,300 | 42,300 c/ | 36,000 | 36,600 | 37,200 | 39,700 | 41,200 | 41,900 | 42,500 | 43,200 |
| Sugar, refined | thous. MT | 1,810 | 830 | 2,420 | 2,150 c/ | 1,780 | 1,800 | 2,250 | 2,700 | 2,700 | 2,970 | 2,970 | 3,150 |
| Meat, processed | thous. MT | 550 b/ | 458 | 497 | 1,170 c/ | 875 | 925 | 1,250 | 1,400 | 1,610 | 1,800 | 1,960 | |
| Butter | thous. MT | 82 | 72 | 185 | 207 c/ | 275 | 290 | 325 | 364 | 379 | 400 | 408 | 450 |
| Vegetable Oils | thous. MT | 667 | NA | 865 | 1,090 c/ | 515 | 680 | 775 | 925 | 1,025 | 1,246 | 1,380 | 1,450 |
| **Other Manufactured Consumer Goods** | | | | | | | | | | | | | |
| Cotton Cloth | mill. linear m | 2,871 | 2,417 | 3,212 | 3,900 | 3,160 | 3,610 | 3,900 | 4,750 | 5,040 | 5,289 | 5,600 | 6,267 |
| Woolen Cloth | mill. linear m | 96 | 89 | 98 | 110 | 129 | 153 | 158 | 179 | 193 | 210 | 242 | 271 |
| Rayon Cloth | mill. linear m | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Silk Cloth | mill. linear m | 10 | 22 | 51 | 70 | 84 | 107 | 131 | 176 | 227 | 404 | 516 | 573 |
| Footwear | mill. pair | 108 | 149.5 | 251 | 278 | 198 | 246 | 300 | 346 | 375 | 375 | 383 | 427 |
| Paper | thous. MT | 284.5 a/ | 478.5 | 831.6 | 812 | 783 | 995 | 1,194 | 1,337 | | | | |
| **Construction** | | | | | | | | | | | | | |
| Housing, living space | mill. square m | 4.9 a/ | — | 5.4 d/ | 8.7 | 14.7 | 14.7 | 19.6 | 18.9 | 18.9 | 19.6 | 22.4 | |
| **B. Indexes (1948=100)** | | | | | | | | | | | | | |
| Total Industrial Output | | 27 | | 81 | 101 | 100 | 118 | 135 | 155 | 173 | 188 | 204 | 226 |
| Fuel and Power | | 18 | 37 | 67 | 88 | 100 | 116 | 130 | 145 | 160 | 177 | 194 | 216 |
| Metals | | 21 | 32 | 90 | 98 | 100 | 123 | 141 | 161 | 182 | 201 | 224 | 241 |
| Chemicals | | 9 | 18 | 55 | 70 | 100 | 125 | 147 | 163 | 179 | 197 | 224 | 257 |
| Construction Materials | | 29 | 58 | 105 | NA | 100 | 120 | 141 | 169 | 197 | 224 | 255 | 283 |
| Machinery and Equipment | | 15 | 38 | 93 | NA | 100 | 131 | 161 | 174 | 192 | 215 | 245 | 277 |
| Food Products | | 50 | 63 | 120 | NA | 100 | 110 | 119 | 133 | 145 | 151 | 158 | 165 |
| Other Manufactured Consumers Goods | | 43 | 54 | 98 | 109 | 100 | 119 | 137 | 162 | 178 | 201 | 223 | 256 |

a/ 1927/1928
b/ 1929/1930
c/ Postwar Territory
d/ 1938






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TABLE 5

SOVIET TRANSPORTATION AND COMMUNICATIONS
(Physical Units and Indexes)

| | | 1928 | 1932 | 1937 | 1940 | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A. Physical Units | | | | | | | | | | | | | |
| Rail a/ | | | | | | | | | | | | | |
| Trackage (station to station) | Thous.KM. | 77 | 82 | 85 | 96 | n.a. | n.a. | n.a. | n.a. | n.a. | 120b/ | n.a. | n.a. |
| Freight Turnover (operating) | Bill. MT-KM | 96 | 174 | 363.2 | 432.5 | 468.2 | 540.8 | 612 | 685 | 747 | 825 | 880 | 930 |
| Freight Originated | Mill. MT | 156 | 268 | 517 | 593 | 622 | 737 | 828 | 943 | 974 | 1,100 | 1,170 | 1,230 |
| Inland Shipping | | | | | | | | | | | | | |
| Inland Fleet (carry. cap.) | Mill. MT | n.a. | 5.5 | 5.7 | 8.2 | 5.1 | 6.2 | 7.1 | 8.0 | 9.0 | 10.0 | 10.8 | 12.0 |
| Freight Turnover | Bill. MT-KM | 15.9 | 25.0 | 33.0 | 36.0 | 32.4 | 39.1 | 49.3 | 51.0 | 57.0 | 61.8 | 65.5 | 70.0 |
| Freight Carried | Mill. MT | 18.3 | 47.0 | 67.0 | 73.7 | 61.0 | 73.8 | 85 | 96.0 | 107.6 | 119.1 | 132.2 | 140 |
| Maritime Shipping | | | | | | | | | | | | | |
| Maritime Fleet (excludes Caspian Sea) | Thous. GRT | n.a. | n.a. | n.a. | 1,200 | 1,843 | 1,849 | 1,843 | 1,973 | 1,996 | 2,046 | 2.247 | 2,298 |
| Freight Turnover | Bill. MT-KM | | 20.1 | 36.4 | | 34.5 | 37.3 | 38.1 | 41.0 | 44.9 | 48.9 | 57.7 | 59.3 |
| Freight Carried | Mill. MT | 8.5 | 15.1 | 29.4 | 31.0 | 25.6 | 29.4 | 32.1 | 34.6 | 40.8 | 44.9 | 48.9 | 53.8 |
| Motor Transport | | | | | | | | | | | | | |
| Truck Park | Thous. Units | 7.5 | 51.6 | 474.6 | 890.5 | 828.7 | 1,033.9 | 1,260 | 1,435 | 1,596 | 1,770 | 1,946 | 2,138 |
| Freight Turnover | Bill. MT-KM | .1 | 1.1(1938)8.3 | | 9.0 | 13.6 | 17.4 | 20.1 | 24.6 | 28.3 | 32.0 | 37.7 | 42.0 |
| Freight Carried | Mill. MT | 15 | 120 | 800 | 855 | 950 | 1,384 | 1,814 | 2,177 | 2,180 | 2,300 | 2,900 | 3,300 |
| Telephone c/ | | | | | | | | | | | | | |
| No. of Messages (Local & Long Distance) | Mill. Units | n.a. | n.a. | n.a. | n.a. | 5,500 | 5,800 | 6,220 | 6,732 | 7,293 | 7,854 | 8,400 | 9,000 |
| B. Indexes (1948-100) | | | | | | | | | | | | | |
| Transportation (total freight Turnover) | | 21 | n.a. | 79 | 92 | 100 | 116 | 132 | 147 | 161 | 181 | 190 | 199 |
| Communications | | n.a. | n.a. | n.a. | n.a. | 100 | 107 | 116 | 127 | 138 | 150 | 163 | 179 |

TABLE 5

SOVIET TRANSPORTATION AND COMMUNICATIONS (continued)
(Physical Units and Indexes)

Footnotes to TABLE 5

a. Based on Soviet Plan Fulfillment announcements; inrail transport, for specific years has been used.

b. Excludes narrow gage track; year end figure.

c. Telephone

Number of messages arrived at by applying a factor representing the number of long-distance telephone conversations per subscriber to the number of subscribers.







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Table 6

Educational Attainment of the Soviet Population: Number and Percentage of Persons between 15 and 59 Years of Age by Highest Educational Level Reached Selected Years, 1897-1955

Millions

| | 1897 | 1913 | 1926 | 1939 | 1950 | 1955 |
|---|---|---|---|---|---|---|
| Higher education | 0.1 | 0.3 | 0.4 | 1.0 | 1.5 | 2.4 |
| Technicums | | | | 1.0 | 2.6 | 3.6 |
| 10-year schools | | | | 0.2 | 2.3 | 4.4 |
| 7-year schools | 0.6 | 1.1 | 1.1 | 6.9 | 21.1 | 34.7 |
| Labor reserve | | | | | 5.7 | 8.0 |
| 4-year schools | 6.9 | 13.6 | 22.0 | 32.7 | 37.7 | 34.3 |
| Factory schools | | | | 2.0 | 2.1 | 2.1 |
| Literate | 9.7 | 20.6 | 24.2 | 40.6 | 40.6 | 36.9 |
| Illiterate | 51.9 | 53.3 | 34.5 | 14.9 | 4.7 | 3.9 |
| Population 15-59 | 69.2 | 88.9 | 82.2 | 99.3 | 118.3 | 130.3 |

Percent

| | | | | | | |
|---|---|---|---|---|---|---|
| Higher education | 0.1 | 0.3 | 0.5 | 1.0 | 1.3 | 1.8 |
| Technicums | | | | 1.0 | 2.2 | 2.8 |
| 10-year schools | | | | 0.2 | 1.9 | 3.4 |
| 7-year schools & labor reserve | 0.9 | 1.2 | 1.3 | 6.9 | 22.6 | 32.8 |
| 4-year schools & factory reserve | 10.0 | 15.3 | 26.8 | 34.9 | 33.6 | 27.9 |
| Literate | 14.0 | 23.2 | 29.4 | 40.9 | 34.2 | 28.3 |
| Illiterate | 75.0 | 60.0 | 42.0 | 15.0 | 4.0 | 3.0 |
| Population 15-59 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Notes to Table 6

Table 7 shows the number of Russians (aged 15-59) having graduated from the principal types of schools during selected past years and every 5 years to 1955.

The method of computation is as follows: (1) the years during which each 5-year age group of the population in given years is of age to graduate from 4-, 7-, and 10-year schools are determined; (2) the percentages of the population of these ages actually graduating for appropriate 5-year periods are averaged out; (3) actual population for each 5-year age group is multiplied by these percentages, giving the number of graduates alive in the given year; (4) to obtain the highest educational level reached, graduations from higher schools are subtracted from graduations from lower schools in the following manner: higher education, all graduates; technicums, all graduates minus 5 percent assumed to have later graduated from higher educational institutions; 10-year schools and workers' facilities, all graduates minus higher education graduates (after adjustment for 5 percent of technicum graduates); 7-year schools, all graduates minus 10-year school graduates, and technicum graduates; labor reserve, all graduates; 4-year schools, all graduates minus 7-year school graduates and labor reserve graduates; factory schools, all graduates; and literate, but without further formal education, residual; total population 15-69 minus illiterates, minus all graduates of above schools.

Although part of the labor reserve graduates did complete 7-year school, it is believed that the large majority completed only 4-year school. Factory schools are believed to have been parallel to 4-year schools and to have recruited few 4-year graduates.

The estimates of Soviet educational attainment are probably fairly reliable because they are based on a substantial amount of data and because the effects of errors in estimates of graduations for particular years are very small. The projections could be thrown off substantially only by a major change in educational policy. Certain types of training such as on-the-job training, evening courses, and the like, are excluded for lack of adequate times series.

Although such training is to some degree necessary for any new employee and is used widely in the USSR for the purpose of up-grading existing workers, its omission is not likely to bias greatly the measure of educational attainment except perhaps during the 1930's when longer on-the-job training was designed to compensate for deficiencies in formal education.

Educational attainment in the Soviet labor force may be somewhat greater than in the total adult population and may have increased more rapidly. Compared to the educational attainment of the 15-59 age group, however, differences are probably rather small, particularly in view of the large growth in the education of women.

TABLE 7

Soviet Education
Selected Years, 1928-1955

Thousand Persons

| Year | Enrollments a/ Grades I-IV | Grades V-VII | Grades VIII-X | Technicums (VIII-XI) | Workers' Faculties | Factory Schools | Labor Reserve | Higher Education | Total |
|---|---|---|---|---|---|---|---|---|---|
| 1928 | 10,350 | 1,437 | 165 | 168 | 49 | 178 | | 160 | 12,527 |
| 1932 | 17,674 | 3,518 | 67 | 748 | 319 | 975 | | 391 | 23,692 |
| 1937 | 20,755 | 7,677 | 1,013 | 739 | 200 b/ | 250 | | 542 | 31,176 |
| 1939 | 20,471 | 9,715 | 1,870 | 952 | 108 | 244 | | 590 | 33,950 |
| 1948 | | | | 1,120 | | | (1,271) | 670 | 3,061 |
| 1949 | 30,866 | | 1,144 | 1,094 | | | (859) | 734 | 34,687 |
| 1950 | 21,920 | 9,373 | (1,707) | 1,306 | | | (691) | 774 | 35,773 |
| 1951 | 17,020 | 12,210 | 2,270 | 1,000 c/ | | | (626) | 841 | 33,967 |
| 1952 | 13,020 | 12,710 | 3,270 | 1,000 c/ | | | (900) | 910 | 31,810 |
| 1953 | 24,423 | | 4,577 | 1,000 c/ | | | (1,100) | 916 | 32,016 |
| 1955 | 16,800 c/ | 11,200 c/ | 5,200 c/ | 610 c/ | | | (500) | 1,000 c/ | 35,310 |

Thousand Persons

| Year | Graduations c/ Grade IV d/ | Grade VII d/ | Grade X d/ | Technicum | Workers' Faculties e/ | Factory School | Labor Reserve | Higher Education | Total |
|---|---|---|---|---|---|---|---|---|---|
| 1928 | 1,800 | 150 | | 29 | 12 | 60 | | | 2,051 |
| 1932 | 2,600 | 450 | | 108 | 60 | 234 | | | 3,452 |
| 1937 | 3,600 | 1,200 | 144 | 156 | 71 | 115 | | | 5,286 |
| 1939 | 3,800 | 1,500 | 216 | 204 | 39 | 100 | | 102 | 5,961 |
| 1948 | 4,500 | 1,825 | 168 | 252 | | | 1,000 | 136 | 7,881 |
| 1949 | 4,500 | 2,000 | 194 | 246 | | | 723 | 163 | 7,876 |
| 1950 | 4,650 | 2,300 | 230 | 220 | | | 494 | 173 | 8,067 |
| 1951 | 4,700 | 2,600 | 280 | 210 | | | 365 | 181 | 8,336 |
| 1952 | 4,800 | 3,000 | 335 | 205 | | | 326 | 200 | 8,866 |
| 1953 | 4,600 | 3,100 | 440 | 200 c/ | | | 300 | 215 | 8,855 |
| 1954 | 4,400 | 3,200 | 755 | 195 | | | 600 c/ | 230 c/ | 9,380 |
| 1955 | 4,200 | 3,300 e/ | 1,110 | 190 | | | 500 c/ | 240 | 9,540 |

a. Projections. Sum of projected graduations for the following 4 years for Grades I-IV and the following 3 years for Grades V-VII and VIII-X. Adjustments for retardation: Grades I-IV, none; Grades V-VII, 10 percent in 1955, 5 percent in 1960-70; none in 1975; Grades VIII-X, 20 percent in 1955.

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TABLE 7

Soviet Education
Selected Years, 1928-1955

Footnotes to TABLE 7 (cont'd.)

b. Figures in this table in parentheses are interpolated.

c. Projected.

d. On the basis of occasional data on graduations and enrollment series, smooth curves were drawn showing the trend of graduations in past years. See notes for assumptions used in projecting.

e. Graduations given as 274,000 in 1931-34, and as 58,000 in 1935. Assuming a 1-year lag, these amount to about 25 percent of enrollments. The same percentage is applied to other enrollment figures to obtain graduation 1 year later.





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Appendix A

Notes to Table 3 and 4

Notes to Table 3

Wheat, Rye, Corn, Rice

1928 Official Soviet Statistics. Prewar territory.

1932 Official Soviet Statistics corrected as per Jasny, The Socialized Agriculture of the USSR, Plans and Performance, 1949. p. 793, difference between official total and corrected total applied to each grain.

1937-38 Estimates. Prewar territory.

1938-53 (Postwar territory) IM-395, Estimate of 1953 Grain Production in the Soviet Bloc, 13 Sept. 1954, S.

Potatoes

1928-37 Official Soviet Statistics, Prewar territory, Jasny.

Cotton, ginned

1928-32 Ocherki Ekonomiki Tekstil'noy Promyshlennosti, SSSR, Khromov, P.A. Moscow, 1946, pp 84-148.

1937 Sovietskiy Khlopok, Vol. 3, 1938, pp 120-22 and Itogi Vypolneniya Vtorogo Pyatiletnego Plana Razvitiya Narodnogo Khozyaistva Soyuza SSR, Moscow, 1929, p 95. The first figure apparently represents output of the ginning industry during the calendar year 1937; the second is that of raw cotton produced (but not necessarily ginned) in 1937 expressed in terms of ginned cotton, on the basis of a ginning yield of 32 percent.

Wool Grease

1928-40 Official Soviet Statistics

Natural Rubber

1948-53 CIA/RR 19, The Rubber Position of the Soviet Bloc, 19 Jan 1953. S. Estimates based on methodology presented in CIA/RR 19, S. and information gleaned from interviews that the Soviet rubber program is far behind Plan.

Cattle, Hogs, Sheep, Goats, Horses (winter livestock numbers)

1928-52 CIA/RR PR 28, Livestock Numbers and Meat Production in the USSR, 17 June 1953. S. (Only summer livestock numbers available for 1928.)

1953-55 Estimates based on methodology similar to that contained in CIA/RR PR 28; IM-397, The "New Course," and the Livestock Industry in the Soviet Bloc, 17 Sep. 1954, S.

Total Sown Area

1928 Voprosy Ekonomiki No. 5, 1954, p. 5.

1932 Socialist Construction in the USSR, 1936, U.

1937 Economic Survey of Europe Since the War, UN, 1953.

1940 Rastenievodstvo p. 5.

1948 Total sown acreage in 1949 was 6 million hectares above 1948. Pravda 18 Jan. 1950.

1949 Total sown acreage in 1950 was said to be 6.6 million hectares above 1949. Izvestiya, 27 Jan. 1951.

1950 Total sown acreage in 1950 was 13% below 1954. Pravda, 7 Nov. 1954.

1951 Total sown acreage in 1951 was 2.8 million hectares less than 1952. Pravda, 23 Jan. 1953.

1952 Total sown acreage in 1952 was 5.3 million hectares more than 1940. Pravda, 8 Aug. 1953.

1953 Total sown acreage in 1953 was 6.8 million hectares above 1940. Pravda, 6 March 1954.

1954 Total sown acreage in 1954 was 8.9 million hectares above 1953. Selskoe Khozyaistvo, 21 Jan. 1954.

1955 Estimate.

Notes to Table 4

Coal (hard), Lignite

1953-54 Projection of the 1952 production estimate.
1955 Revised goal determined from 12 Jan. 1955 announcement of the Deputy Minister of the USSR Coal Industry that miners must produce 13% more coal this year than last. (FBIS No. 9, 13 Jan. 1955, p. CC-15, Official Use Only)

Electric Power

1928-32 Socialist Construction in the USSR, 1936.
1940-55 Estimates determined by applying announced percentage increases to the firm 1940 estimate of output.

Manganese Ore.

1928-40 NIS 26, Chapter VI, Section 63, Minerals and Metals, Dec. 1949, C.
1948-55 Contribution to NIS 26, Chapter VI, Section 63, Minerals and Metals, 1955.

Crude Steel

1928-39 SDS69, The Iron and Steel Industry of the USSR, 1943. S.
1940 Plan, Khoz. Feb. 1953.
1948-55 Estimates.

Finished Steel

1928-32 Socialist Construction in the USSR, 1936.
1937-40 Large Soviet Encyclopedia, 1947.
1948-54 Estimates based on Soviet Central Statistical Administration announcements.
1955 Projection.

Primary Copper, Lead, Zinc

1928-40 Minerals Yearbook, 1940, 1946, Bureau of Mines
1948-55 Estimates based on plant studies, plan fulfillment information, and percentage increase figures which are published quarterly and annually in the Soviet press.

Aluminum (primary)

1932-55 Estimates.

Tin

1952-53 Interpolations between 1951 estimate and an estimated under-fulfillment of the Fifth Five Year Plan

Ammonia, Synthetic

1940-55 CIA/PR-115, The Synthetic Ammonia Industry in the USSR, 21 June 1955. S. US Officials Only.

Synthetic Rubber

1932-52 CIA/RR 19, The Rubber Position of the Soviet Bloc, 19 Jan. 1953, S.
1953-55 Estimates based on similar methodology as presented in CIA/RR 19, S.

Cement

1928-37 Socialist Construction in the USSR, 1936.
1940-55 CIA/RA-1, Cement Production in the USSR, 1945-60, 20 July 1955, S.

Bricks

1932-40 Soviet Plan Fulfillment announcements
1948-55 CIA/RR PR-110, Significant Developments in Soviet Building Materials Industry, 8 Apr. 1955, C.

Sawn Timber
1927/28-40 Prices of Fuelwood and Wood Products in the USSR, 1928-1950, RAND, RM-1421, 1 Feb. 1955, U.
1948 Hodgman, Soviet Industrial Production, 1928-1951, 1954.
1950, 52, 53, 55 - Computed from production estimates of round wood and industrial wood.
1951, '54. Interpolated.

Steam Turbines and Motors and Generators
1928-32 Socialist Construction in the USSR, 1936.
1940, '48-54 NIS 26, Section 64 (CIA/ORR Project 30.414) S.
1955 Estimates--extrapolation of series presented in NIS 26, Section 64 (CIA/ORR Project 30.414) S.

Mainline Locomotives (Electric, Diesel, Steam), Freight Cars
1948-55 Estimates based on a study of the Soviet railroad equipment industry, plant capacity and output studies, plan fulfillment information and percentage increase figures which are published quarterly and annually.

Merchant Ships (tankers, cargoes & other S.P. N.E.C., tugs, barges & other N.S.P.)
1950-55 CIA/ORR Project 30.570, Shipbuilding and Repair for the Bloc and Uses of Acquired and Repaired Vessels by the Bloc, 25 Aug. 1954, S; and CIA/ORR Project 35.51, 20 Feb. 1953, S.

Trucks
1928-40 Official Soviet data.
1948-55 Estimates determined from plant studies, serial number analysis and applications of Soviet announced changes in the rate of output.

Passenger Cars
1937 Official Soviet data.
1938-55 Estimates based on officially announced Soviet percentage changes in annual production using 1950 as a base year. The 1950 absolute figure for passenger car production is derived by a calculation which employs an officially announced relationship between truck output and passenger car output in 1950, using the absolute value of truck output which was determined for 1950 from serial number data.

Tractors
1928-55 CIA/RR 37, The Role of the Tractor Industry in the USSR, 1940-54, 16 Aug. 1954. S.

Flour
1928 Jasny, The Socialized Agriculture of the USSR, Plans & Performance, 1949.
1937 (1938 estimate) Jasny, estimate.
1940-55 Estimates determined by applying annual grain consumption rates per capita to population estimates.

Sugar, refined
1928 (1930 estimate)
1932-40 Donald R. Hodgman, Soviet Industrial Production, 1928-1951, 1954.
1948-55 Estimates.

Meat (dressed weight including fats, excluding canned meat)
1928 Nifortor, 1932, p. 154.
1932 S.S. Kh. 1939, p. 73.
1937 Estimate, Third Five-Year Plan, p. 218.

Butter (large scale industry)

| | |
|---|---|
| 1928-40 | Hodgman, Soviet Industrial Production, 1928-1951. 1954. |
| 1948-55 | Estimates based on milk production available for government processing into butter. |

Vegetable Oils (total large scale and small scale industries)

| | |
|---|---|
| 1928 | 1928/29 figure. |
| 1948-55 | Estimates. |

Cotton, Woolen, and Silk Cloth

| | |
|---|---|
| 1948-55 | CIA/RR Project 28.207 (RA) Statistical Data on the Production of Nonfood Consumer Goods in the USSR, 1940 and 1945-55, 10 Dec. 1954. C. |

Boots and Shoes

| | |
|---|---|
| 1928-37 | NIS 26, Section 64, Chapter VI, (Dec. 1949) |
| 1938-55 | ORR Project 28.207, (RA) Statistical Data on the Production of Nonfood Consumer Goods in the USSR 1940 and 1945-55, 10 Dec. 1954. C. |
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